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Marked-Up Copy of the Amendments Submitted With

Amendment; Response To Office Action Mailed October 8, 2002

In the Specification:

On page 39, the paragraph beginning on line 14.

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As used herein, "a method of treating a hydrocarbon containing formation" may be used interchangeably with "an in situ conversion process for hydrocarbons." "Hydrocarbons" are generally defined as molecules formed primarily by carbon and hydrogen atoms~~organic material that contains carbon and hydrogen in their molecular structures~~. Hydrocarbons may also include other elements, such as, but not limited to, halogens, metallic elements, nitrogen, oxygen, and/or sulfur. Hydrocarbons may be, but are not limited to, kerogen, bitumen, pyrobitumen, and oils. Hydrocarbons may be located within or adjacent to mineral matrices within the earth. Matrices may include, but are not limited to, sedimentary rock, sands, siliclytes, carbonates, diatomites, and other porous media.

In the Claims:

1058. (amended) A method of treating a hydrocarbon containing formation in situ, comprising:
providing heat from one or more ~~heat source~~heaters to at least a portion of the formation;
allowing the heat to transfer from the one or more ~~heat source~~heaters to a pyrolysis zone
of the formation;

controlling a pressure within the formation to inhibit production of hydrocarbons from
the formation having carbon numbers greater than 25; and
producing a mixture from the formation.

1059. (amended) The method of claim 1058, wherein the one or more ~~heat source~~heaters
comprise at least two ~~heat source~~heaters, and wherein superposition of heat from at least the two

~~heat sourceheaters~~ pyrolyzes at least some hydrocarbons within the pyrolysis zone of the formation.

1060. (amended) The method of claim 1058, wherein ~~the at least one or more of the heat sourceheaters~~ comprises an electrical heaters.

1061. (amended) The method of claim 1058, wherein ~~the at least one or more of the heat sourceheaters~~ comprises a surface burners.

1062. (amended) The method of claim 1058, wherein ~~the at least one or more of the heat sourceheaters~~ comprises a flameless distributed combustors.

1063. (amended) The method of claim 1058, wherein ~~the at least one or more of the heat sourceheaters~~ comprises a natural distributed combustors.

1067. (amended) The method of claim 1058, wherein providing heat from the one or more ~~heat sourceheaters~~ to at least the portion of formation comprises:

heating a selected volume (V) of the hydrocarbon containing formation from the one or more ~~heat sourceheaters~~, wherein the formation has an average heat capacity (C_v), and wherein the heating pyrolyzes at least some hydrocarbons within the selected volume of the formation; and

wherein heating energy/day (P_{wr}) provided to the selected volume is equal to or less than $h \cdot V \cdot C_v \cdot \rho_B$, wherein ρ_B is formation bulk density, and wherein an average heating rate (h) of the selected volume is about $10^{\circ}\text{C}/\text{day}$ wherein heating energy/day provided to the volume is equal to or less than P_{wr} , wherein P_{wr} is calculated by the equation:

$$\underline{P_{wr} = h \cdot V \cdot C_v \cdot \rho_B}$$

wherein P_{wr} is the heating energy/day, h is an average heating rate of the formation, ρ_B is formation bulk density, and wherein the heating rate is less than about $10^{\circ}\text{C}/\text{day}$.

1069. (amended) The method of claim 1058, wherein providing heat from the one or more ~~heat source~~heaters comprises heating the selected formation such that a thermal conductivity of at least a portion of the pyrolysis zone is greater than about 0.5 W/(m °C).

1094. (amended) The method of claim 1058, wherein producing the mixture comprises producing the mixture in a production well, and wherein at least about 7 ~~heat source~~heaters are disposed in the formation for each production well.

1095. (amended) The method of claim 1058, further comprising providing heat from three or more ~~heat source~~heaters to at least a portion of the formation, wherein three or more of the ~~heat source~~heaters are located in the formation in a unit of ~~heat source~~heaters, and wherein the unit of ~~heat source~~heaters comprises a triangular pattern.

1096. (amended) The method of claim 1058, further comprising providing heat from three or more ~~heat source~~heaters to at least a portion of the formation, wherein three or more of the ~~heat source~~heaters are located in the formation in a unit of ~~heat source~~heaters, wherein the unit of ~~heat source~~heaters comprises a triangular pattern, and wherein a plurality of the units are repeated over an area of the formation to form a repetitive pattern of units.

5397. (amended) The method of claim 1094, wherein at least about 20 ~~heat source~~heaters are disposed in the formation for each production well.